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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,564	01/09/2002	Stacey G. Lloyd	BEA920000019US1	1831
25253	7590	08/31/2004	EXAMINER	
IBM CORPORATION IP LAW DEPT, ED02-905 15450 SW KOLL PARKWAY BEAVERTON, OR 97006-6063			BUEHL, BRETT J	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/045,564	LLOYD, STACEY G.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brett J Buehl	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1/9/02, 3/6/02 and 11/13/02.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1-20 have been examined.

#### *Papers Submitted*

2. It is hereby acknowledged that the following papers have been received and placed on record in the file: Change of Address as received on 11/13/02, Declaration and Fees as received on 03/06/02 and Original Declaration as received on 01/09/02.

#### *Specification*

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
4. The applicant is requested to review the specification and update the status of all co-pending applications made mention of, replacing attorney docket numbers with current U.S. application or patent numbers when appropriate. References to U.S. applications or patents should make it clear as to what the number refers (e.g. U.S. Patent No. #), instead of listing only the number.
5. The use of the trademark INTEL has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

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6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: Fig. 1.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: claims 5-7, 9 and 12 recite the limitation "generating a range" of transactions/operations. It is unclear to the examiner what is meant by the phrase "generate a range of operations" since the written description does not mention how this is accomplished. It is unclear whether this step is dynamic, generated during functionality, or static, generated before functionality as a preprogrammed list. For the purposes of this office action, the phrase "generate a range of operations [transactions]" will be interpreted to indicate the static generation of a list of problematic operations.

*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-7, 11-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Borkenhagen et al., U.S. Patent No. 5,790,843.

10. Regarding claim 1, Borkenhagen has taught a method for handling operations within a hardware device, comprising:

- a. Providing within the device information regarding the operation, the provided information including information identifying the operation. It is inherent in this type of digital device that the instructions (transactions) have identifying information. The identifying information is found in the form of operational codes (opcodes), which identifies the type of operation the instruction represents;
- b. Selecting at least some of the identifying information of the operation (col. 2, lines 17-19);
- c. Converting at least some of the information regarding the operation based upon the selected identifying information (col. 2, lines 20-23);
- d. Executing the operation based upon the converted information (col. 2, lines 23-28).

11. Regarding claim 2, Borkenhagen has taught the method of claim 1, wherein the provided information is within a register (16 of Fig. 1) of the device.

12. Regarding claim 3, Borkenhagen has taught the method of claim 1, wherein the identifying information is within a register (16 of Fig. 1) of the device.

13. Regarding claim 4, Borkenhagen has taught the method of claim 1, wherein the converted information is within a register (18 of Fig. 1) of the device.

14. Regarding claim 5, Borkenhagen has taught the method of claim 1, wherein the step of providing information regarding the operation comprises:

- a. Loading operation identifications (col. 2, lines 30-34); and
- b. Generating, based on the operation identifications, a range of operations (col. 3, lines 40-41 and 44-47) related to the provided information.

16. Regarding claim 6, Borkenhagen has taught the method of claim 5, wherein the step of loading operation identifications comprises creating a list (col. 2, lines 30-34 and 40-43) of identified operations. The step of loading opcodes into registers implies that the problematic opcodes were first compiled in a list.

17. Regarding claim 7, Borkenhagen has taught the method of claim 5 wherein the operation identifications comprise fields for operation identification (OPCD field, PowerPC), length (L field, PowerPC), attribute (RA field, PowerPC) and target (BF field, PowerPC) of each operation. Borkenhagen discloses the utilization of the PowerPC architecture (col. 4, line 11), which includes instructions that comprise these fields.

18. Regarding claim 11, Borkenhagen has taught a method for redirecting operations within a hardware device, wherein operations occurring within said device contain fields of information regarding the operation and such operations are compared with a preprogrammed list of

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responses and the hardware device issues responses based on each operation, the method comprising the steps of:

- a. Creating a list of identified operations for which a redirected response is desired (col. 2, lines 30-34). Loading the identified operational codes (opcodes) into the registers implies the first step of creating a list of identified operations;
- b. Comparing each operation with the list of said identified operations (col. 2, lines 17-19); and
- c. Substituting the redirected response for the response from said preprogrammed list of responses (col. 2, lines 20-23).

12. Regarding claim 12, Borkenhagen has taught the method of claim 11, wherein the step of creating a list of identified operations include first loading transaction identifications (col. 2, lines 30-34), then operating on said operation identifications (col. 3, lines 40-41 and 44-47) to generate a range of operations related to one or more of said fields of information.

13. Regarding claim 13, Borkenhagen has taught the method of claim 11 wherein the operation identifications comprise fields for operation identification (OPCD field, PowerPC), length (L field, PowerPC), attribute (RA field, PowerPC) and target (BF field, PowerPC) of each operation. Borkenhagen discloses the utilization of the PowerPC architecture (col. 4, line 11), which includes instructions that comprise these fields.

14. Regarding claim 14, Borkenhagen has taught a system for altering predetermined response comprised of:

- a. First storage means to identify operations for which a response different from said predetermined response is desired (col. 2, lines 16-17);



- b. Comparator means to compare said given operation with said identified operations (col. 2, lines 17-19);
- c. Second storage means to load a substitute response for said predetermined response (col. 2, lines 19-20); and
- d. Selection means to select said substitute response when a given operation meets a redefined criteria for substituting a response from said second register means (col. 2, lines 21-23).

13. Regarding claim 15, Borkenhagen has taught the system of claim 14, wherein one or more of said storage means may be selectively enabled or disabled. It is officially noted that the presence of a load enable signal in a register constitutes an enable/disable feature. The load signal allows the register to be written only when the signal is active. This indicates that the register can be selectively enabled or disabled by controlling the load signal.

14. Regarding claim 16, Borkenhagen has taught in a data system utilizing a hardware control device in which a given operation results in a predetermined response for that operation, a system for providing a programmable redefinition of allowed instructions and associated responses within said hardware device including:

- a. First register means (36 of Fig. 2) which contains fields to identify preselected operations which may occur within the system;
- b. Second register means (43 of Fig. 2) which operates upon selected fields in the first register means to further define a criteria related to a range of operations for which redirecting a response is desired;

- c. Comparator means (34 & 35 of Fig. 2) which compares the identified operations with a current operation and selects a substitute value when said identified operation meets a said defined criteria; and
- d. Third register means (44 of Fig. 2) which contain substitute values for all said operations which meet said defined criteria.

15. Regarding claim 17, Borkenhagen has taught the system of claim 16, wherein one or more of said register means may be selectively enabled or disabled. It is officially noted that the presence of a load enable signal in a register constitutes an enable/disable feature. The load signal allows the register to be written only when the signal is active. This indicates that the register can be selectively enabled or disabled by controlling the load signal.

16. Regarding claim 18, Borkenhagen has taught a data processing system for executing an operation, comprising:

- a. An identification store including information identifying at least selected operations (16 of Fig. 1);
- b. A comparator responsive to the operation and the identifying information (col. 2, lines 40-41); and
- c. A substitute operation responsive to the comparator and the operation (col. 2, lines 47-51).

16. Regarding claim 19, Borkenhagen has taught the system of claim 1, wherein the comparator is responsive to a mask of the identifying information (col. 4, lines 52-60).

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borkenhagen, U.S. Patent No. 5,790,843, and further in view of Malmer, U.S. Patent No. 3,889,242.

19. Regarding claim 8, Borkenhagen has taught a method for redirecting transactions within a hardware device, wherein transactions occurring within said device contain fields of information regarding the transaction, the method comprising the steps of: selecting which fields of said first register are to be acted upon (col. 3, lines 40-41 and 45-47); converting the transaction information (col. 3, lines 47-51) to be redirected through a pre-programmed value for each said field; outputting said new transaction results to a register (col. 3, lines 45-51). Borkenhagen has not explicitly taught loading all of said fields necessary to identify a transaction into first register.

20. However, Malmer has taught the use of a register (10 of Fig. 1) to hold the instruction value while the instruction is modified. The purpose of this register is to ensure that the instruction value does not change while it is being modified. It is common practice in the digital

systems art to add registers to a system where a value must be held until a given time. Using a register to hold the incoming instruction would ensure the integrity of the instruction until the modification is complete. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Borkenhagen to include a register to preserve the incoming instruction to be modified, ensuring that undesirable signal changes during modification do not interrupt the modification process.

21. Regarding claim 9, Borkenhagen, in combination with Malmer, has taught the method of claim 8, wherein the step of loading said field necessary to identify a transaction include first loading transaction identifications, then operating on said fields of information. Borkenhagen states that incoming operations are compared to the instruction match registers and, if appropriate, a modified response is outputted (col. 4, lines 52-60). This indicates that the incoming operation fields were "operated on."

22. Regarding claim 10, Borkenhagen, in combination with Malmer, has taught the method of claim 8, wherein said fields of information are comprised of a field for transaction identification (OPCD field, PowerPC), length (L field, PowerPC), attribute (RA field, PowerPC) and target (BF field, PowerPC) of each transaction. Borkenhagen discloses the utilization of the PowerPC architecture (col. 4, line 11), which includes instructions that comprise these fields.

23. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Borkenhagen, as applied to claim 18 above, and further in view of Richardson, U.S. Patent No. 6,427,202.

24. Regarding claim 20, Borkenhagen has taught the system of claim 18, but has not explicitly taught including a disable signal to prevent operation of the comparator.

25. However, Richardson has taught the use of a enable/disable bit, which is set by a signal from the control unit (col. 8, lines 25-32), in a device for a configurable instruction set. The purpose of providing an enable/disable feature is to allow specific instructions to be modified from their original form, while other instructions are disabled, not allowing them to be changed. Adding an enable/disable feature would be advantageous in a system for modifying microprocessor operations since it may or may not be necessary for the functionality of the final product. Including the signal allows the hardware to be disabled, in the case that there are no problematic instructions, providing normal performance. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the comparator means of Borkenhagen with an enable/disable feature so that the hardware is only enabled if problematic instructions are encountered, yielding normal performance when none are present.

### *Conclusion*

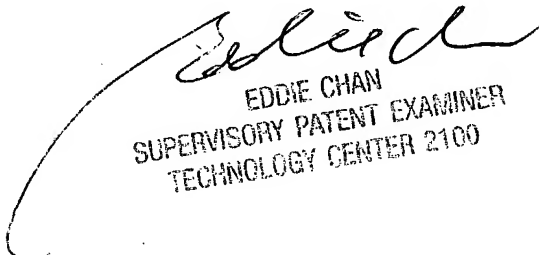
26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the patentable novelty must be clearly shown in view of the state of art disclosed by the references cited and the objections made. Applicant must show how the amendments avoid such references and objections. See 37 CFR 1.111(c).

27. Inquiries concerning this communication or earlier communications from the examiner should be directed to Brett J. Buehl who can be reached at (703) 305-4663 or <brett.buehl@uspto.gov>. The examiner can normally be reached between the hours 8:00am – 5:30pm (EST), Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan, can be reached at (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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